

# Infant Formula Decision Tree

JUNE 29, 2022

## Introduction

The Minnesota WIC Program is committed to the protection, promotion, and support for breastfeeding. Exclusive breastfeeding for the first six months, and continued breastfeeding for up to 2 years or longer, is recommended for the healthy growth and development of infants and toddlers. The only recommended alternative to breastmilk for infants is commercial infant formula.

The nutrition content of powder, liquid concentrate, or ready-to-feed formula is similar when reconstituted. Powder infant formula is not sterile but is safe to use for healthy full-term infants when prepared and handled properly. Ready-to-feed formula is sterile and is recommended for infants at high risk of infection. It can be issued according to [Section 7.5.2](#).

## Common Formula Feeding Concerns

Sometimes infants can experience feeding concerns. Families may ask about symptoms their formula-fed infant is experiencing, and it is helpful to understand what is normal and what is concerning. A parent should follow up with their health care provider with issues outside these common concerns:

- **Spitting Up** – All infants will sometimes spit up after feeding. Spitting up involves small amounts of milk coming up and can occur several times a day and even after every feeding. If the baby is growing well and is not irritable, there is little concern. Addressing these common feeding techniques that can lead to spitting up might alleviate the issue:
  - Feeding baby without burping during and after a feeding.
  - Overfeeding.
  - Too much movement or motion during or immediately after a feeding.
  - Laying a baby flat after a feeding.
  - Feeding with nipples that have holes that are too large that allow liquid to flow too fast can cause excessive intake and swallowing air.
- **Constipation** – Stool frequency in normal infants may vary from zero to six stools per day. Frequency generally lessens as an infant matures. Breastfed infants may have more or less frequent stools than formula-fed infants. Constipation is not defined by infrequent stools but by consistency (hard, dry pellets that are difficult to pass). The appearance (color and consistency) of stools varies with infants' age and diet. The earliest stools after birth consist of meconium, which is thick, sticky, and greenish black. These stools are succeeded by transitional stools and then

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regular stools. Normal stool colors for infants are green, brown, yellow, orange, and combinations of these. Common causes of infant constipation include:

- Switching from human milk to formula.
- Mixing formula inaccurately with the wrong amount of water.
- Drinking cow's milk.
- **Diarrhea** – Diarrhea is the passage of loose, unformed, or watery stools having an unpleasant odor. Also, the number of stools passed in a day is more frequent than normal. Refer parents with infants experiencing persistent diarrhea or explosive diarrhea to their health care provider.
- **Skin irritation** – Can be due to a variety of causes; most are unrelated to formula.
- **Changing Formulas** – Changing to a new formula or frequent formula changes can lead to a variety of symptoms. Read more in this document about what to expect when a baby is [Changing Formulas](#).

## Standard Formulas

All standard infant formulas, milk or soy-based, are made under the Infant Formula Act to meet the energy and nutrient requirements for healthy full-term infants during the first four to six months of life. Modification of ingredients of standard infant formulas may improve symptoms of mild formula intolerance, such as fussiness, gas, diarrhea, constipation, and spit-up. Changes to formula that may address common feeding concerns:

- **Added rice starch** – Replaces portion of lactose and thickens formula in the gut.
- **Partially hydrolyzed protein** – Protein hydrolysis splits protein into smaller units to become easier to digest.
- **Prebiotics** – Non-digestible nutrients that promote the growth of good microorganisms and improve gut health.
- **Reduced lactose** – Lactose is milk carbohydrate that contains units of galactose and glucose. Some marketing literature suggests that reduced lactose may decrease symptoms caused by mild lactose sensitivity.
- **Whey:casein ratio** – Whey and casein are proteins found in cow milk and human milk. The whey:casein ratio in cow milk is 18:82. The ratio in human milk fluctuates between 70:30 and 80:20 in early lactation and decreases to 50:50 in late lactation.

## Formulas with added rice starch

Formula that thickens with added rice starch is intended for infants with **mild** spitting up. Do not use for infants who require specialized thickened formula due to swallowing difficulties or who are at risk of aspiration. It thickens in the gut once activated by gastric acid. For that reason, it will not work if the infant is on a medication inhibiting acid production.

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Thickening infant formula by adding infant cereal to it is not recommended. This may increase coughing during feeding and may increase the energy density of formula causing excessive energy intake. Regurgitation (spitting up) is normal in infancy. It reflects physiological immaturity, which usually improves without medical intervention, and becomes less frequent with time as gastroesophageal sphincters mature. Projectile vomiting may be a sign of a serious medical condition and should be referred to a health care provider immediately. Gastroesophageal reflux (GER), with or without regurgitation, is relatively common in healthy full-term infants. Further assessment is necessary if spitting up persists or increases in severity.

### Formulas with partially hydrolyzed protein and reduced lactose

Formulas containing partially hydrolyzed whey and casein proteins and reduced lactose are marketed as “easy to digest” for infants with fussiness and gas. There is insufficient evidence that these formulas reduce colic or prevent allergies. They are considered a safe choice for most healthy full-term infants.

### Formulas with prebiotics

Prebiotics are nondigestible food components that stimulate growth and activity of certain bacterial species in the gut. More research is needed before prebiotics can be recommended in infant formula and to determine the optimal dose and duration of supplementation. Formula-fed infants who are not eating complimentary foods and are experiencing constipation may benefit from using an infant formula with prebiotics.

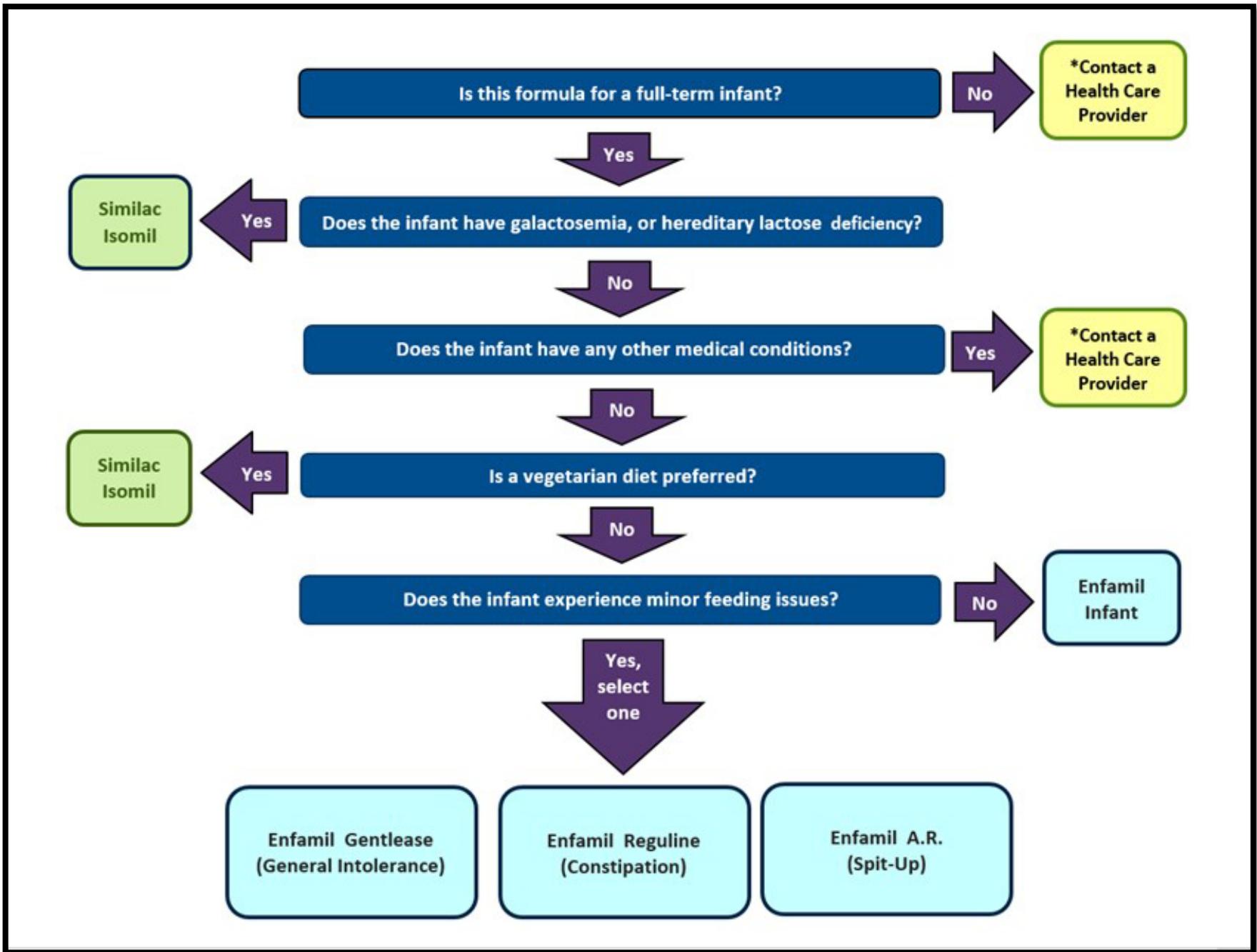
### Soy formulas

Soy formulas support normal growth and development in healthy full-term infants with the exceptions of preterm infants, infants with congenital hypothyroidism, and infants with renal failure. Indications for use of soy formulas should be limited to infants with galactosemia or hereditary lactase deficiency, or for cultural or religious reasons, such as vegetarian lifestyle.

## Infant Formula Decision Tree

The **Infant Formula Decision Tree** – is intended as a WIC tool to determine the most suitable contract formula for an infant. It is not a substitute for clinical advice of a health care provider. It is also not intended to promote formula or be used as an assessment tool or comprehensive formula resource.

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**Minnesota WIC Contract Formulas Characteristics**

Name	Source	Protein	Whey: Casein	Carbohydrate	Prebiotics
Enfamil Infant	Cow's Milk	Intact Protein	60:40	Lactose	Yes
Enfamil Gentlease	Cow's Milk	Partially Hydrolyzed Protein	60:40	Corn Syrup Solids 20% Lactose	No
Enfamil Reguline	Cow's Milk	Partially Hydrolyzed Protein	60:40	Corn Syrup Solids 50% Lactose	Yes
Enfamil A.R.	Cow's Milk	Intact Protein	20:80	Rice Starch Lactose	Yes
Similac Isomil	Soy	Soy Isolate	N/A	Corn Syrup Solids Lactose Free	Yes

For more information about a specific formula, visit [Mead Johnson Nutrition](#) or [Abbott Nutrition](#).

\*If an infant experiences any clinical symptoms with standard formulas, such as bloody stools, projectile vomiting, severe skin reactions, persistent colic, weight loss, and growth failure, contact a Health Care Provider for evaluation and feeding advice. Obtain a complete [Medical Formula Documentation Form](#) for a WIC-approved medical infant formula.

**Medical Formulas**

Medical formulas are made to address specific medical conditions, such as prematurity, low birth weight, food allergies, failure to thrive, and unusual medical or dietary problems. Clinical symptoms may include but are not limited to bloody stools, excessive vomiting, severe skin reaction, persistent colic, weight loss, and growth failure. Participants should contact their health care provider for evaluation and feeding advice.

**Formulas for Preterm Infants**

The nutritional goal for preterm infants is to provide optimal nutrition approximate to the rate of growth and weight gain similar to a full-term infant. Preterm infant formulas often include increased amount of the whey predominant protein, minerals, carbohydrate blends of lactose and glucose polymers, and fat blends containing a large proportion of fat as medium-chain triglycerides (MCT) oils which are more easily absorbed.

### **Premature (pre-discharge) formulas**

Since premature infants can only take small volumes, premature (pre-discharge) formulas contain higher calories per ounce and have increased amounts of protein, vitamins, and minerals. They are sterile, ready-to-use, and often in two-ounce nursettes. No probiotics or prebiotics are added. These formulas are intended for use in the hospital for a short period of time. They may also be used for infants discharged before reaching 8 lbs. Continued use after the infant reaches 8 lbs. and is taking normal volumes of formula can put the infant at risk of harm due to excessive intake of some nutrients. Example: Enfamil Premature and Similac Special Care. Minnesota WIC does not provide these formulas.

### **Transitional (post-discharge) formulas**

Transitional formulas are designed for preterm infants after discharge. Compared to standard formulas, they have 22 calories per ounce and contain higher calcium and phosphorus to promote bone mineralization. Example: EnfaCare and NeoSure.

### **Formulas for Infants with Allergy or Gastrointestinal (GI) Disorders**

Adverse reactions to formulas may result from immunologic and non-immunologic response or GI disorders. Symptoms may include colic, congestion, runny nose, wheezing, vomiting, diarrhea, bloody stools, and rash.

#### **Hypoallergenic formulas with hydrolyzed protein**

Most formula-fed infants who are allergic to standard formulas will tolerate hypoallergenic formulas. They are extensively hydrolyzed, casein-based formulas, are often lactose-free, and may contain MCT oils. Example: Alimentum and Nutramigen.

#### **Formulas for Infants with fat malabsorption**

Extensively hydrolyzed casein-based formulas that are lactose-free and provide a substantial percentage of MCT oils are useful in the management of fat malabsorption, such as infants with GI disorder, short bowel syndrome, and cystic fibrosis. Example: Pregestimil.

#### **Elemental formulas with amino acids**

If an infant reacts to cow milk-based hypoallergenic formula, an amino acid-based formula should be used. These formulas can also be used for infants with GI disorders, short bowel syndrome, necrotizing enterocolitis. Example: Elecare, Neocate, and PurAmino.

## Reference and Resources – Complete Listing of Hyperlinks

[Section 7.5.2 WIC Formulas](https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/chsctns/ch7/sctn7_5.pdf) ([https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/chsctns/ch7/sctn7\\_5.pdf](https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/chsctns/ch7/sctn7_5.pdf))

[Changing Formulas](https://www.health.state.mn.us/docs/people/wic/localagency/recall/transitions.pdf) (<https://www.health.state.mn.us/docs/people/wic/localagency/recall/transitions.pdf>)

[Mead Johnson Nutrition](https://www.meadjohnson.com) (<https://www.meadjohnson.com>)

[Abbott Nutrition](https://abbottnutrition.com) (<https://abbottnutrition.com>)

[Minnesota WIC Formula Summary](https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex7/7b.pdf) (<https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex7/7b.pdf>)

[Minnesota WIC Formula Resource Manual](https://www.health.state.mn.us/docs/people/wic/localagency/nutrition/formula/resource.pdf)  
(<https://www.health.state.mn.us/docs/people/wic/localagency/nutrition/formula/resource.pdf>)

[Medical Formula Documentation Form](https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex7/7d.pdf)  
(<https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex7/7d.pdf>)

[Introduction to Formula Module](https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/introformula/index.html) (<https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/introformula/index.html>)

[Standard Infant Formula Module](https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/standardform/index.html) (<https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/standardform/index.html>)

[Medical Formula Module](https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/medformula/index.html) (<https://www.health.state.mn.us/training/cfh/wic/nutrition/modules/medformula/index.html>)

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